

ABSTRACT OF THE DISCLOSURE

An image processing device and a method for processing an image data, which includes a plurality of horizontal lines, each of which includes a plurality of pixel data. The image processing device includes at least one 5 buffer unit for sequentially outputting a plurality of superpixels, and at least one processing unit, which is coupled to the at least one buffer unit, for sequentially processing the superpixels. Each superpixel includes a first pixel data and a second pixel data adjacent to the first pixel data, and the first pixel data and the second pixel data do not belong to the same horizontal line.